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| DATE:      | November 10, 2003   | TOTAL # OF PAGES: 4<br>(INCLUDING THIS COVER SHEET) |
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**COMMENTS:**

Interview outline in regards to Serial No. 09/654,115

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REFERENCE # 446602-18

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INTERVIEW OUTLINE

Ser. No. 09/654,115

Monday, November 10, 2003

2:00 P.M. EST

1. The independent claims are 1, 25, 34 and 48. Claims 25, 34 and 48 were rejected as being anticipated by the patent to Serocki. Claim 1 was rejected as being obvious over the patent to Serocki in view of the patent to Morrison *et al.*
2. The invention involves determining cacheability of instructions at the time the instructions are compiled, and then marking the compiled instructions according to the determination. According to one aspect of the invention, the markings can be used during execution of the compiled instructions to determine whether the compiled instruction should be cached.
  - a. The invention is not branch prediction, which involves analyzing a program as it is being executed to predict what branch will be executed. In branch prediction, once a prediction is made, the instructions in the predicted branch are prefetched. However, branch prediction has nothing to do with determining the location (*i.e.*, cache or system memory) from which the instructions are fetched. The invention can mark instructions for cacheability and then use those instructions during execution regardless of whether or not the instructions include branches. However, the invention can be used with processor systems having branch prediction and prefetch capabilities.
  - b. The invention is not rearranging the instructions so that they can be executed more efficiently. The invention can mark instructions for cacheability and then use those instructions during execution without the need to re-order the instructions prior to either compilation or execution.

3. The patent To Serocki discloses a technique for branch prediction in which rules are established to predict the branches that a program is likely to take. The "target addresses" of the instructions to which the program is likely to branch are then inserted into the program. The program instructions that have been instrumented with the target addresses are then stored in either system memory or cache memory.
  - a. The Serocki patent does not teach or suggest either determining the cacheability of instructions or marking code to assist in the caching of instructions. The target addresses have nothing to do with determining whether or not an instruction will be cached.
  - b. The Serocki branch prediction technique is performed without regard to the cacheability of the instructions.
4. The patent to Morrison *et al.* discloses a technique for more efficiently executing branched instructions in a program by changing the order of the instructions in the program prior to execution. The program is examined during compilation to determine how long it would require to execute each instruction (its "IFT"). The instructions are then re-ordered based on the determined IFTs.
  - a. While the computer system disclosed in the Morrison *et al.* patent includes a data cache and an instruction cache, the patent does not suggest how or when cacheability determinations are made. They are presumably made in a conventional manner based on how frequently the instructions are executed.

5. Claims 25, 34 and 48 are clearly not anticipated by the Srocki patent. As mentioned above, the Srocki patent teaches branch prediction; it does not relate to determining the cacheability of instructions. In the invention, instructions can be cached even if there are no branches in a program. Branch prediction address hints, whether stored in cache or system memory, have nothing to do with determining the cacheability of instructions. For a claim to be anticipated, the prior art reference must disclose each and every element of the claims exactly as claimed. Arguments that elements of the claim are "implied" based on disclosed subject matter that is different from the claim cannot suffice to support an anticipation rejection.
6. Claim 1 is not obvious over the patent to Srocki in view of the patent to Morrison *et al.* As explained above, neither patent, taken either alone or in combination, suggests determining the cacheability of instructions at the time of compilation and then marking the instructions accordingly. Long-winded arguments about what one skilled in the art would recognize from the cited references cannot supply the basic teachings that are missing from both references.

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| COMMENTS:  |  |                  |                   |      |  |
| Pursuant to your telephone conference with Edward Bulchis, attached is a copy of the amendment and related documents as filed on December 16, 2003, for application number 09/654,115. Check #013617, for \$110.00, was paid on December 26, 2003, as further evidence as being received. (500050.01)  |  |                  |                   |      |  |
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